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## A NOTE ON THE GENUS LOLLIGUNCULA.

BY S. S. BERRY.

In 1881 Professor Steenstrup, as a note to the French résumé of his paper on "Sepiadarium og Idiosepius" (*K. Danske Vidensk. Selsk. Skr.*, 6 R., I, 1881, p. 242), wrote as follows:

"Le *Loligo brevis* de Blainv. est pour moi le type d'un genre à part: *Lolliguncula*. Parmi les espèces connues du genre *Loligo* Lmk., cette espèce, si bien caractérisée par ses nageoires épaisses, larges et très courtes, formant dans leur ensemble un ovale transverse, est la seule dont les femelles reçoivent les spermatophores sur la paroi intérieure du manteau, à côté de la branchie gauche.

Le mâle du *Loligo brevis*, ainsi que celui du *Loligo brevipinna* Les., si ce dernier est réellement une espèce distincte, ne m'étant pas connu, la place systématique du genre nouveau est pour moi encore un peu douteuse."

*L. brevis* is an Atlantic form, but I have lately encountered a species from the opposite coast of Middle America which may prove to belong to the same genus.

***Lolliguncula* (?) *panamensis* n. sp. Plate VI.**

Body of moderate size, plump and compact for *Loligo*, resembling *L. brevis* of Blainville in general shape, but even wider and more swollen. Mantle margin obtusely angled above, and produced forward more acutely on either side of the siphon; broadly emarginate below. Fins large, rhomboid, with an obtusely rounded outline; more than half as long as the mantle; lobate in front, and barely continuous behind around the blunt posterior end of the body. Mantle connectives large and prominent, but offering no especial peculiarities of structure.

Head small, much narrower than the body; squarish; deeply excavated below. Eyes rather large, a low, transverse, membranous crest just behind them. Siphon large and broad, much compressed, and supported by bridles.

Arms rather small, decidedly unequal; order of length 4 = 3, 2, 1; the dorsal pair considerably the smallest and shortest. Suckers small, in two rows, obliquely set on short peduncles; horny rings armed

with 11-15 short, broad, squarely truncate teeth, which become nearly or quite obsolete on the lower edge. All the arms except the ventral pair are connected at the base by a very short and thin umbrella.

Hectocotylization unknown.

Buccal membrane well-developed, seven-pointed, the four ventral points attached to the arms, but the three dorsal lappets free, except at the base, and armed at the tips with from 5 to 7 minute suckers.

Tentacles longer than the mantle; club with four rows of suckers, the two inner the larger, but all becoming subequal and very minute distally; horny rings of the large median suckers with from 23 to 27 rather small acute teeth, much reduced on the lower edge.

Gladius thin, very deep, with broad expanded wings, very much like *L. brevis*.

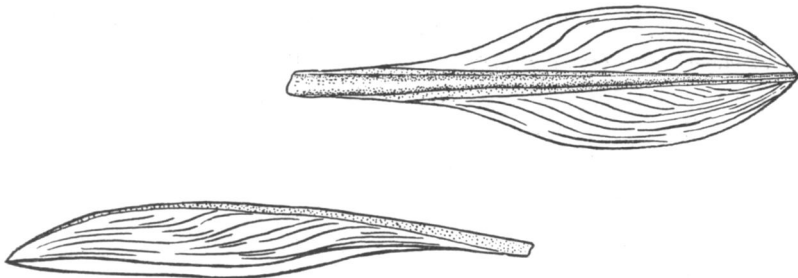


Fig. 1.—*Lolliguncula* (?) *panamensis*, n. sp. Dorsal and lateral aspects of gladius.

Chromatophores small, very evenly distributed over the body everywhere except on the under surface of the fins.

*Habitat*.—Panama (Hopkins Expedition); Guayaquil, Ecuador (P. O. Simons).

*Types* in the Museum of Stanford University.

This is a striking species, differing so prominently from both its congeners in the same region (*Loligo gahi* d'Orbigny and *L. diomedæ* Hoyle) that special comparison with these is quite unnecessary. It certainly appears nearest to *Lolliguncula brevis* (Blv.), but the specimens bear no spermatophores and hence is my uncertainty as to their true generic position. The general form of the body and relative length of the arms among other features are essentially very similar, but the smaller size of *L. brevis*, its relatively shorter and more rounded fins, and sparser toothing of the horny rings are characters to be noted.

My comparison has been with typical *L. brevis* from the Brazilian

coast and not the similar or nearly allied forms from the West Indian and Florida regions, which may or may not be the same species. Specimens have been reported from the latter region which are apparently intermediate in character between *Lolliguncula brevis* and *Loligo pealii*. Of such a nature are two very large adult females from Charlotte Harbor, Fla., in the Museum of Comparative Zoology, possibly the same as those in the same museum from the same locality

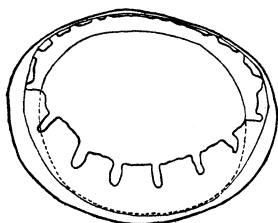


Fig. 2.

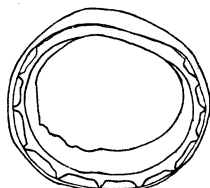


Fig. 3.

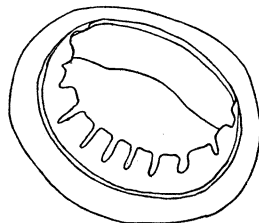


Fig. 4.

Figs. 2-4.—Camera drawings of horny rings from the suckers of the third arms of: 2—*Lolliguncula* (?) *panamensis* n. sp. [58]; 3—*Lolliguncula brevis* (Blainv.), Rio de Janeiro, Brazil [46]; 4—*Loligo* (?) sp., Charlotte Harbor, Fla. [54].

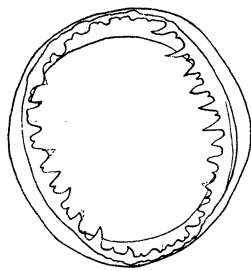


Fig. 5.

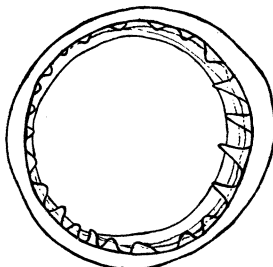


Fig. 6.

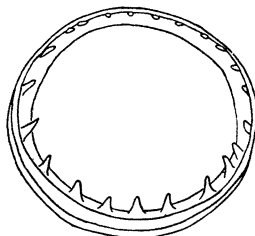


Fig. 7.

Figs. 5-7.—Camera drawings of horny rings from the tentacular suckers of: 5—*Lolliguncula* (?) *panamensis*; 6—*Lolliguncula brevis*; 7—*Loligo* (?) sp., Charlotte Harbor, Fla.

listed as *L. brevis* by Verrill (*Ceph. N. E. Amer.*, 1881, p. 345). Here the fins are somewhat sagittal in shape, very much as in juvenile *L. pealii*; the animal is much larger; the gladius has a longer and narrower blade than the Brazilian *brevis*, and there are two lateral thickenings on each wing; the horny rings of the sessile arms have from 8 to 13 elongate, squarely truncate teeth on the upper margin (in *L. brevis* they are nearly obsolete), while those of the larger tentacular suckers have about 24 large, acute teeth alternating with nearly

as many minute interstitial ones. Unfortunately, the specimens bore no spermatophores. It may be that further material will show that these represent but an extreme form of *L. pealii*, but it is not altogether impossible that the *brevis-hemiptera-brevipinna* group includes a number of well-defined races, geographically separated but confused in the literature.

In conclusion it may be well to call attention to the fact that the male of *L. brevis*, which has again and again been stated in the literature to be unknown, was well described by Professor Steenstrup himself in his famous paper on Hectocotylus Formation.<sup>1</sup> In the specimens available to me the details of hectocotylization are made out with difficulty, but I can at least confirm his observations. Only the distal portion of the left ventral arm is affected, as in *Loligo*. The first 18 to 20 pairs of suckers are normal. From this point on the suckers of the dorsal (outer) row undergo rapid modification and become degenerated to rather large flattish papillæ. The suckers of the ventral row are but little modified and persist to the tip of the arm. Thus we are still unable to distinguish the genus *Lolliguncula* from the genus *Loligo* by any important character save that the female of the former receives the spermatophores of the male upon a calloused patch within the mantle near the left gill, whereas in *Loligo* they are received on a pad below the mouth.

#### EXPLANATION OF PLATE VI.

*Lolliguncula* (?) *panamensis* n. sp.—Tentacle club and dorsal aspect (*nat. size*) of type. Drawn by Miss Lora Woodhead.

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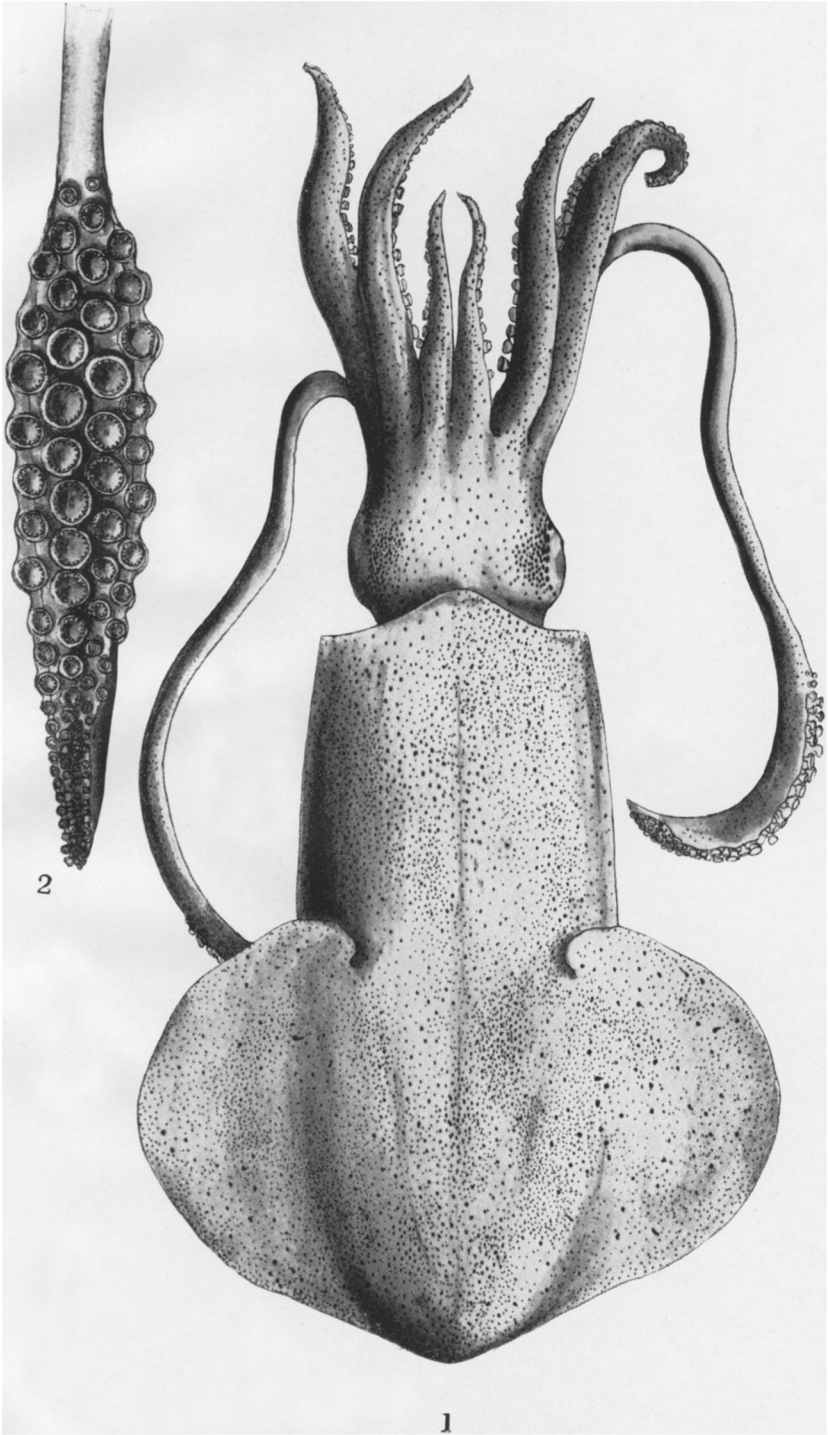
<sup>1</sup> See English reprint in *Ann. Mag. Nat. Hist.* (2), XX, 1857, p. 86.



*Specimens Examined.*

|                                                           | No. speci-<br>mens. | Locality.               | Collector.           | Where deposited.            | Sex.       | Remarks. <sup>2</sup>                                                |
|-----------------------------------------------------------|---------------------|-------------------------|----------------------|-----------------------------|------------|----------------------------------------------------------------------|
| <i>Loliguncula (?) panamensis</i> n. sp.....              | 2                   | Panama.                 | Hopkins Exped.       | L. S. J. U. coll.           | ♂          | [58] Types.<br>[58] Cotype.<br>[57]                                  |
|                                                           | 1                   | "                       | "                    |                             | ♀          |                                                                      |
|                                                           | 1                   | Guyaquil, Ecuador.      | P. O. Simons.        | L. S. J. U. coll.           | ♀          |                                                                      |
| <i>Loliguncula brevis</i><br>(Blainville) Steenstrup..... | 3                   | Rio de Janeiro, Brazil. | Hassler Exped.       | Mus. Comp. Zool., Cat. 3391 | ♀          | [47]<br>[52]<br>[46]<br>[48]<br>[53]<br>[50]<br>[49]<br>[51]<br>[56] |
|                                                           | 3                   | "                       | "                    | " " " " 3382                | ♀          |                                                                      |
|                                                           | 5                   | "                       | "                    | " " " " 3429                | ♀          |                                                                      |
|                                                           | 13                  | "                       | "                    | " " " " 3414                | ♂ & ♀      |                                                                      |
|                                                           | Numerous            | "                       | Thayer Exped., 1865. | " " " " 3413                | ♂          |                                                                      |
|                                                           | 14                  | "                       | "                    | " " " " 3416                | 5 ♀ 9 juv. |                                                                      |
|                                                           | 22                  | "                       | "                    | " " " " 3407                | ♂ & ♀      |                                                                      |
|                                                           | 4                   | Santos, Brazil.         | "                    | " " " " 3478                | ♂          |                                                                      |
|                                                           | ?2                  | Cameron, Louisiana.     | M. H. Spaulding      | L. S. J. U. coll.           | juv.       |                                                                      |
|                                                           |                     |                         |                      |                             |            |                                                                      |
| <i>Loligo (?)</i> sp.....                                 | 2                   | Charlotte Harbor, Fla.  |                      | Mus. Comp. Zool., Cat. 644  | ♀          | [54]                                                                 |

<sup>2</sup> Numbers in brackets refer to the private card register of the author.



BERRY ON LOLLIGUNCULA.